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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/566,931

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York Alexander Beste

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CONNOLLY BOVE LODGE & HUTZ, LLP
P O BOX 2207
WILMINGTON, DE 19899

EXAMINER

MANOHARAN, VIRGINIA

ART UNIT

PAPER NUMBER

1797

MAIL DATE

DELIVERY MODE

12/28/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/566,931

Applicant(s)

BESTE ET AL

Examiner

Virginia Manoharan

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1797

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f):
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

In lieu of a non-compliance letter, applicants are advised that in response to this Office action, a complete listing of all the claims, each with proper status identifier, should be provided. The claims should also be presented in ascending numerical order.

The 371P document of record, on file, dated on February 2, 2006 (corresponding to PCT/US02/35749 appears not relevant to the present invention.

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

The abstract of the disclosure is objected to because of the inclusion of legal phraseology often used in patent claims such as "comprising" in line 5; "comprises", in line 6 and "means of" in line 8. See MPEP § 608.01(b).

The specification has not been checked to the extent necessary to determine the presence of all possible minor errors, e.g., typographical, grammar, idiomatic, syntax and etc. Applicants' cooperations are requested in correcting any errors of which applicants may become aware in the specification.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 15-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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- a). Claim 15 does not differ substantially with claim 16 with respect to positive, manipulative process/method steps.
- b). Regarding claims 16 and 23, the phrase " particularly preferably " render the claims indefinite because the claims include steps not actually disclosed (those encompassed by "particularly preferably", thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d). See also the recitation of "very particularly preferably" in claim 23.
- c). The following claimed languages lack proper antecedent supports in the claims. For Examples Only:
 - 1). "the low boiler", claim 17;
 - 2). "the ionic liquid obtained by means of the work-up" (not initially recited in the base claim), claim 24;
 - 3). "the extractive rectification column" in claim 24; and
 - 4). "the evaporator" in claim 21.
- d). Claim 19 recitation of "dried inert gas" is at odds and appears to be broadening the "air" of claim 18, the claim from which it depends.
- e). In claim 23, the parenthetical statement in a claim is improper as every feature recited in a claim becomes a part of the overall subject matter. By placing terms in parenthesis renders the claims ambiguous as to whether or not these phrases should be disregarded.
- f). It is unclear what constitute the "ionic liquid" used as entrainer within the context of the claimed invention. It is not specified in the claims.

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g). The term "close" in claim 23 is a relative term which renders the claim indefinite. The term "close" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claims 1-12 are objected to because "one or more" should be—at least one—to avoid the alternative "or"

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claim 17 is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 2-3 and claim 1 of copending Applications Nos. 10/471,546 and 10/566,935 respectively in view of Ali (4,623,432). Although the conflicting claims are not identical, they are not patentably distinct from each other because the subject matter of the instant claims is covered in the claims of

the above co-pending applications and vice versa. The co-pending application 10/566935, for example, recites “ wherein a high-boiling bottom product is taken off from the column in vapor form via a side offtake”. However, Ali teaches that such limitation is conventionally done in the art the art (Fig. 1) so as to obtain the many benefits suggested, for example, at col. 4, lines 54-68.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim 17 is provisionally rejected on the ground of nonstatutory double patenting over claims 2-3 and claim 1 of copending Applications Nos.10/471,546 and 10/566,935 respectively. This is a provisional double patenting rejection since the conflicting claims have not yet been patented. The subject matter claimed in the instant application is fully disclosed in the referenced copending applications and would be covered by any patent granted on that copending application since the referenced copending application and the instant application are claiming common subject matter, as follows: use of an entrainer which is an ionic liquid; the bottom product and entrainer is worked up in such a way that said entrainer can be recovered; the separation of said bottom product from said entrainer is carried out by rectification.

Furthermore, there is no apparent reason why applicant would be prevented from presenting claims corresponding to those of the instant application in the other copending application. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 15-26 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Applicants' Disclosure of Admitted Art as illustrated by WO 02/074718.

At page 2, lines 7-12, applicants describe that "WO 02/074718 discloses that ionic liquids are particularly good entrainers for the separation of close-boiling or azeotropic liquid mixtures and are superior to conventional entrainers. The superiority can be seen directly in the selectivity and separation factor. When using a suitable ionic liquid, the separation factor at the azeotropic point is farther from one than when using a conventional additive in the same amount". Moreover, at page 12, lines 15-23, applicants further describe that "An embodiment of extractive rectification is described in WO 02/074718 (cf. Figure 1). (2) indicates the inflow of the entrainer into a countercurrent rectification column. Since in conventional processes the entrainer has a low but appreciable volatility compared to the overhead product (stream 7), the separation elements (1) have to be used to separate overhead product and entrainer. The separation elements (3) and (5) effect the desired separation of overhead product

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from bottom product under the action of the entrainer, stream (4) is the feed stream of the components to be separated (feed), stream (6) is the bottom product and the entrainer. Separation elements can be, for example, trays, ordered packing or random packing". Applicants also describe at page 13, lines 32-34, that " WO 02/07418 gives general information as to how the entrainer present can be recovered (page 16). Apart from vaporization, the use of a stripping column (stripper) or precipitation into a solid phase are also mentioned".

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Roscher et al discloses a distillation process operated at pressure from 5 to 500 mbar.

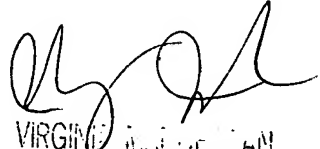
Any inquiry concerning this communication or earlier communications from the examiner should be directed to V. Manoharan whose telephone number is (571) 272-1450.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


VIRGINIA A. J. GORMAN
PRIMARY EXAMINER
ART UNIT ~~128~~ 1797